Question 15.5 (REVISED)

Topic: Missing Data -- Monitor Data Availability

Question: For a block of missing data, is the percent monitor data availability (PMA) at the end of the missing data period used as the trigger for selecting the appropriate missing data algorithm under §75.33, or should the data substitution routines be applied to each hour based upon the hourly PMA?

Answer: For a period of missing data, you may either:

(1)   Use the PMA calculated by the DAHS for the last hour of the missing data period, together with "N", the length (duration) of the CEMS outage, to determine which substitute data routine to apply to the entire missing data period, as a single "block" of data substitution as described in §75.32(b); or

(2)   Upon approval, apply the substitute data routines on an "hour-by-hour" basis, using the calculated PMA at each hour during the missing data period, together with "N", the total length (duration)[1] of the CEMS outage, to determine the appropriate substitute value for that hour. Under this option, you must calculate and report the PMA for each hour of the missing data period. To use this option, the Designated Representative or Authorized Account representative of a Part 75 or NOx SIP-call affected unit must submit a one-time request for approval to their respective continuous emissions monitoring contact (email requests are acceptable). A list of CEM contacts is provided on EPA's web site at http://www.epa.gov.airmarkets/monitoring/arp/contacts.html. Requests must identify the plant name and ID of the unit(s) at which the option would be used, and the proposed date upon which the new procedure would be used. Because the Administrator has previously determined under §75.66 that this alternative is consistent with the purposes of the missing data provisions, and will not have an adverse affect on the relevant programs, EPA anticipates that such requests will be routinely granted.

EXAMPLE:

If the SO_2 CEMS for a monitoring location is down for 1,800 consecutive operating hours during a quarter and the PMA in the first hour of the missing data period is 92.0%, and given the following:

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[1]Note, that if the missing data period extends beyond the end of a calendar quarter, the missing data period duration (N) at the end of that quarter must be used.

Substitute Data Routine	Substitute Data Values
Average of HB/HA[2]	75 ppm
90th percentile of 720 hr L.B.	100 ppm
95th percentile of 720 hr L.B.	150 ppm
Max value from 720 hr L.B.	250 ppm
MPC	400 ppm

Substitute data may be applied as follows:

"Block" approach:

Using the "block" approach of option (1), above, the PMA at the end of the missing data period would be 71.5 %. At this PMA value, §75.33 requires the use of the MPC. So in this case the source would substitute 400 ppm for the SO_2 concentration, for all 1,800 hours of the missing data period.
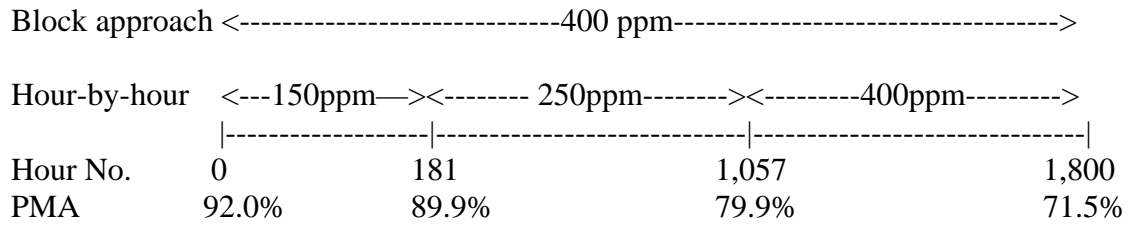
"Hour-by-hour" approach:

Using the "hour-by-hour" approach from option (2), above, several steps of missing data would be used.

1. For the first 180 hours of the missing data period, since the PMA is greater than or equal to 90.0% but less than 95.0%, and the duration (N) of the missing data period (1,800 hours) is greater than 8 hours, the correct substitute data value is the greater of the average HB/HA value and the 95th percentile value from a 720 hour lookback through quality assured SO_2 data.. In this case, the 95th percentile lookback value (150 ppm) is greater than the HB/HA value (75 ppm), so 150 ppm would be substituted for these hours.

2. For hours 181 through 1,056 of the missing data period, the PMA for each hour is below 90.0% but greater than or equal to 80.0%. Therefore, the maximum value from the 720 hour lookback is used. In this case, the maximum value in the lookback is 250 ppm.

3. For hours 1,057 through 1,800 of the missing data period, the PMA for each hour is below 80.0%. Therefore, the MPC (in this case 400 ppm) would be substituted for each of these hours.

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[2]Note, that if missing data period extends beyond the end of a calendar quarter, the value from the hour before should be used in lieu of the average HB/HA value, since the HA value may not be known.

The two missing data substitution options are illustrated below:

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Block approach <-----------------------------400 ppm------------------------------------>

Hour-by-hour   <---150ppm—><-------- 250ppm--------><---------400ppm--------->
               |------------------|---------------------------|-----------------------------|
Hour No.       0                181                 1,057                        1,800
PMA            92.0%            89.9%               79.9%                        71.5%
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References: §§ 75.31 - 75.33

Key Words: Missing data

History: First published in May 1993, Update #1, Revised February 23, 2005